

WORLD-CLASS ARMY ADAPTIVE TRAINING: NEXT STEPS

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USAWC STRATEGY RESEARCH PROJECT

WORLD-CLASS ARMY ADAPTIVE TRAINING: NEXT STEPS

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The future operating environment, combat lessons learned, and recent doctrine changes demand that the U.S. Army continually adapt its training. This paper will demonstrate that Army training objectives are clearly stated, show the Army is already pursuing excellence in training, and conclude by offering new adaptive training ways and several modified Army Intelligence initiatives to guide the enterprise forward and improve the Army's collective ability to "adapt" and "learn." Specifically, the Army needs to create a knowledge management training network, build an enterprise "corporate memory," empower knowledge managers, enable enterprise "tactical overwatch," build an automated unit reporting feedback mechanism, and structure combat enabler units to better support training and operational support. To enable the network, the Army must link generating and operating forces through one information technology infrastructure; field a world class enterprise Opposing Force (OPFOR); provide receptacles to "plug-in" Joint, interagency, intergovernmental and multinational (JIIM) enablers; and replicate the emerging operating environment in the training base in near real time. The Army must then instantiate these new approaches into its enterprise culture. The lines between adaptive planning, training, and operations are blurring.

WORLD-CLASS ARMY ADAPTIVE TRAINING: NEXT STEPS

Our 'competitors' are living, thinking, adaptive adversaries who mean to destroy us and the society we defend. Our choice is quite clear: 'adapt or die.' ...

—Brigadier General David A. Fastabend
and Mr. Robert H. Simpson¹

The Army is the best trained force in the world—the envy of other militaries. To maintain this edge, the Nation must invest in innovative, creative, and adaptive Army training in support of Army Force Generation (ARFORGEN).² The desired state³ of Army training is perpetual adaptation to provide the best trained Soldiers and units. To improve the Army's collective ability to "adapt" and "learn," the Army must enable new training ways and modify several Army Intelligence transformation concepts (e.g., access to a "flat" network,⁴ "tactical overwatch," and "Every Soldier is a Sensor" (ES2))⁵ and apply them across the enterprise. Specifically, the Army needs to create a single knowledge management training network, empower knowledge managers, build an enterprise "corporate memory," enable enterprise "tactical overwatch,"⁶ field a world-class Opposing Force (OPFOR), link the generating and operating forces through one information technology infrastructure, and replicate the emerging operating environment in the training base in near real time.

Why are operating environment changes required to be replicated in the training base in near real time? Building an Army enterprise "corporate memory" through an adaptive knowledge management training network in near real time will counter an adaptive enemy, account for increased operational tempo, reduce the dangerous spin-up period for deploying forces, and enable units to quickly plan and train for a completely new environment and mission in response to a new threat. Establishing an

enterprise “corporate memory” is critical to defeating a potential global insurgency or a peer, nation-state competitor.

Soldiers fighting for our Nation expect and deserve the best training possible, and the Army must ensure training ends, ways, means, and risk⁷ are clearly defined and well resourced or mitigated. This paper will demonstrate that Army training ends (objectives) are clearly stated, show that the Army is already pursuing excellence in training, and conclude by offering new adaptive ways for the Army to maintain an edge over smart, adaptable enemies. Specifically, why does the Army need to change its training? What improvements has the Army already implemented? What more needs to be done? How can the Army adapt its culture and mindset to incorporate revolutionary and evolutionary changes? Most importantly, the Army risks longer, protracted struggles if we do not equip and train Soldiers with the best available tools. Leaders and Soldiers must realize that “... it is about taking our legacy of tactical innovation and extending it to the strategic and institutional dimensions of our Army.”⁸

The Operating Environment Demands Global Focused, Adaptive Training

The Army envisions the foreseeable future as an “era of persistent conflict” and change with “protracted confrontation among state, non-state, and individual actors who will use violence to achieve political, religious, and other ideological ends.”⁹ The National Intelligence Council recently published *Global Trends 2025: A Transformed World*, which described the emerging operating environment as a “global multipolar one” with conditions “ripe for disaffection, growing radicalism” and terrorist groups formed from remnants of today’s groups and “emergent collections of the angry and disenfranchised that become self-radicalized.”¹⁰

The 2006 Hezbollah-Israeli war and the late November 2008 terrorist attacks in Mumbai, India, demonstrate the sophistication and adaptability of an asymmetric, non-state threat hidden among world populations. These hybrid threats have the ability to simultaneously combine conventional, irregular, terrorist, criminal, and other means of violent approaches to strike U.S., allies, and coalition partner vulnerabilities.¹¹ More specifically, these enemies are able to take advantage of operational seams, gaps in intelligence collection, the lack of intelligence sharing, and the lack of collaboration and capability within the U.S. Government Interagency. These hybrid, radicalized enemies have successfully adapted to “globalization” faster than the U.S. and its allies.

Collectively, we must “stitch-up” these seams. All threat data and friendly lessons learned are important to piece together the global enemy picture and improve the operating force. The emerging operational environment requires Army and Joint, interagency, intergovernmental and multinational (JIIM) processes to adapt to meet the environmental demands, the transnational nature of the enemy, and a potential global insurgency.¹² Al Qaeda is adaptive, thinks globally, and shares lessons learned in real time.¹³ The Army must adapt its training to stay ahead of its enemies.

Operational Experience Demands World-Class, Adaptive Training

Even with world-class training and expert intelligence efforts, wars are messy, and surprises will happen. Then-Lieutenant General William S. Wallace, Commanding General V (U.S.) Corps was surprised early in Operation IRAQI FREEDOM (OIF). He described the unanticipated fanaticism and actions of Saddam Fedayeen, foreign fighters, and other factions: “The enemy we were fighting was not what we had predicted.”¹⁴ As Lieutenant General Wallace experienced, the collective operational

experiences of the Army garnered over seven years of war further demonstrate that we are fighting a smart, adaptable enemy.

The enemy fights in the same complex areas year-after-year and maintains a “home-court” advantage over U.S. units that rotate every 6-15 months and have to adapt to new terrain, new populations, and the enemy. The importance of the Army maintaining contact with the enemy is even more critical for units that lack the “luxury” of extensive time on the ground to adapt. Leaders and Soldiers must be able to enter a combat zone today and immediately conduct full spectrum operations. U.S. forces cannot suffer a drop in capability immediately after transfer of authority. The Army must maintain continuity of operations and not fight the Long War one year at a time.

In 2003, anticipating a need for the Army to learn and apply lessons learned more quickly, Chief of Staff of the Army (CSA) General Eric K. Shinseki directed the drafting of *On Point*, a study of OIF “as soon after the fact as feasible ... (to provide) a quick, thorough review and capture the strategic, operational, and tactical lessons that should be disseminated and applied in future fights.”¹⁵ *On Point* is an example of the Army’s robust efforts to gather lessons learned and tactics, techniques, and procedures (TTPs) which serve as “catalysts for change.” Army Training and Doctrine Command’s (TRADOC) Center for Lessons Learned (CALL) deploys multiple theater observers and collection and analysis teams to collect observations, insights, lessons, TTPs and best practices from Army and JIIM operations across the warfighting functions—maneuver, intelligence, fires, sustainment, protection, and command & control and information.¹⁶

The Army's collective operational experiences demonstrate that we must apply all means to adapt faster than our enemies. General Wallace recognized that we must change the Army mindset and culture to fully realize this objective,

Historically, we have considered TTPs as part of our doctrine-development process, but with the enemy's evolving tactics and the pace of change, this idea might no longer be valid. We believe the Center for Army Lessons Learned, at Fort Leavenworth, will assume increased responsibility for the horizontal distribution of best practices across the Army ... TRADOC's Lessons Learned Initiative (L2I) envisions branch schools having virtual cells in command posts deployed to theaters and at home stations across the Army. ... it offers an opportunity to better understand and support the operating force with ARFORGEN training, experimentation, and how we monitor and police the communities of practice on the Internet. L2I must be embedded as an integral component of future TRADOC centers of excellence (CoE).¹⁷

RAND completed a study in 2007, entitled *Supporting Training Strategies for Brigade Combat*, concluding: "Future training ... will also need to cover a larger range of skills and adapt quickly to changing needs and conditions. ... (and) the training system (will need) to continually evolve and adapt."¹⁸ The Army cannot possibly train for every circumstance on the battlefield. It can train Soldiers and leaders to be more adaptive, take more initiative, and exhibit an expeditionary mindset. Soldiers' experiences in Operation ENDURING FREEDOM (OEF) and OIF have demonstrated adaptive operations and the need for more adaptive training.

Doctrine¹⁹ Demands World-Class, Full-Spectrum and Adaptive Training

"Learn" and "adapt" are the core themes of Army doctrine published in the past three years, beginning with Field Manual (FM) 3-24 *Counterinsurgency* in December 2006.²⁰ FM 3-0 *Operations* also indicates expeditionary leaders must be adaptive.²¹ Of significance, "learn" and "adapt" are mentioned 15-20 times each in FM 3-0, demonstrating the importance of these two themes in operations doctrine.

“Learn” and “adapt” themes also permeate Army training and planning doctrine. According to FM 7-0 *Training for Full Spectrum Operations*, “The Army Training System prepares leaders, Soldiers, and units to employ Army capabilities adaptively and effectively in today’s varied and challenging conditions.”²² Based on Secretary of Defense Donald Rumsfeld’s frustrations in planning OEF and OIF, the Department of Defense (DOD) forged new Adaptive Planning doctrine.²³ According to FM 3-0 *Operations*, the Army requires “comprehensive, continuous, and adaptive planning.”²⁴ Lieutenant General William Webster recognized the strengths of adaptive planning: “We have to change the way we plan, and we’ve done that with adaptive planning, which ... build(s) plans ... that can be changed to meet the changing situation.”²⁵

The Army has significantly transformed doctrine to stress the importance of learning and adapting. The Army must now instantiate adaptive changes across the training enterprise more quickly. Then-Major General Peter Chiarelli’s watch words must guide the enterprise forward; we must develop “an organization built for change.”²⁶

Desired State of Army Training

The 2008 Army Posture Statement outlines the “desired state” of Army training as continual adaptation: “We continue to adapt institutional, individual, and collective training to enable Soldiers to succeed in combat and prevail against highly adaptive and intelligent adversaries.”²⁷ In 2006, General William S. Wallace, Commanding General TRADOC, articulated this desired state:

A symbiotic relationship is forming between generating and operating forces, and the traditional line between responsibilities is beginning to blur. TRADOC must establish better linkages to the operating forces it supports while simultaneously receiving constant feedback on adaptive solutions for current and future Army modular forces ... We must also develop a process to seamlessly link the operating force with the generating force in

terms of doctrine, tactics, techniques, and procedures, and best practices through a structured but adaptable knowledge-management network.²⁸

Create a Knowledge Management Training Network

General Wallace's vision for a "knowledge-management network" is the stepping stone to building a dynamic, near real-time operational knowledge management training support network. This 24-7 operational network would be the link between a world-class, full spectrum OPFOR that can function as mini-National Training Center (NTC) cadres across the Army enterprise; the training CoEs; an operating force in a combat zone; and a designated network operations center to control the enterprise.

Discussing the many processes and procedures required to make a knowledge management training network a reality is beyond the scope of this paper. The intent is to provide a workable concept that links the generating and operating forces within a single adaptable network without putting unnecessary burden on the operating force. Clearly, operational information coming out of a combat zone is valuable to units training to deploy, and the Army can also leverage assets in ARFORGEN reset/train and ready phases to support the operating force.

To replicate an adaptive, full-spectrum training environment, the Army should first field an enterprise, world-class OPFOR that will drive force-on-force command post exercises, serve as garrison training support teams, and adapt as needed to resemble a global-based insurgency. The OPFOR team would be based at garrison locations throughout the Army, and the team could surge to multiple locations to support larger training requirements. The threat would be linked across the training base and integrated in every training venue including home-station lane training, Basic and Advanced Individual Training, Officer / Warrant Officer, and Non-Commissioned Officer

institutional training exercises, Battle Command Training Program (BCTP), and the Combat Training Centers (CTCs).

How would the network function? The Army must first establish a training network operations center (e.g., TRADOC's Training Counter-IED Operations Integration Center)²⁹ with robust communication capabilities to link the generating and operating forces, the OPFOR, and training venues in the Army, all JIIM exercises, and interagency exercises. Battalion, Brigade Combat Team (BCT), Division, and Corps knowledge managers will feed lessons learned, new enemy TTPs, and other data into the training network through various CoEs or other forums (e.g., Stryker Warfighter Forum (SWfF)). The operating force will send daily requirements to the operations center to be worked by designated operational support units (e.g., "tactical overwatch" / reachback) and the generating force.

The generating force and units in ARFORGEN reset/train and ready pools will be placed on green, amber, or red cycles for knowledge management training or operational support missions. If in a green status, the network operations center will include the unit or part of a unit as available for training and / or operational support. Detailed battle rhythms and processes would have to be developed to link all planned training, friendly lessons-learned exchanges, and enemy TTP discussions into an enterprise endeavor.

TRADOC CoEs and other best practice network nodes will serve as "expert" filters of information before sending the data into the larger network. This filter mechanism will provide an initial sanity check and make recommendations on who should be trained on this information or lessons learned. One key question is: Does the

information meet the time horizon, mission, or phase of certain ARFORGEN reset/train or ready forces? After consultation with a senior leader forum (e.g., SWfF), the network operations center will issue a directive for the new enemy TTP or friendly lesson learned to be trained Army wide or tailored to certain units. The network operations center will distribute “knowledge” to the enterprise via best practice networks, emails to designated leaders, and other push / pull mechanisms to build “corporate memory.”

Based on new enemy data and friendly lessons learned, the global, world-class OPFOR may change structure or TTPs as directed by the network operations center to replicate the changing operating environment. This process will have a direct impact on daily training through sharing TTPs, lessons learned, and enemy data throughout the Army, but it cannot be perceived as taking away from required institutional training.

For example, new enemy data/TTP could be simultaneously introduced on a Basic Training ES2 training lane at Fort Benning, Georgia; a Human Intelligence Training Exercise in Grafenwoher, Germany; and a BCT rotation at the National Training Center (NTC). A Soldier in Basic Training on the ES2 lane at Fort Benning may immediately recognize the importance of the enemy data and file a report through his Command Post of the Future (CPOF) linked by a training base Distributed Common Ground System–Army (DCGS-A).³⁰ The unit knowledge manager then inputs the data into the training knowledge management network. From these efforts, OPFOR cells were disrupted at NTC and throughout the training enterprise.

To ensure the reporting unit receives feedback, unit knowledge managers will tag the data before sending the report through the network. Each time the new enemy data or friendly lesson learned is used to target a threat cell or improve another unit’s

operations, an Army-wide automated metric system tracks the results both in training and in the operational force. This feedback loop provides the unit and thereby the individual Soldier with information on success throughout the Army based on reported information. During subsequent after action reviews, the network operations center will inform the enterprise of the unit's success. This feedback loop reinforces the importance of ES2, the power of collected / reported information, and the applicability of friendly lessons learned across the enterprise.

The linkage of the global OPFOR, military planners, multiple exercises and training venues, and the operating force in one information technology (IT) network will change the culture of the Army and JIIM partners. Over time each Soldier and leader will understand the importance of reporting changes, populating databases with essential elements of information, sharing lessons learned across the force in near real time, building "corporate memory" to fight the enemy, and thinking of a global mission rather than disconnected battlefields. The lines between adaptive planning, training, and operations will blur even more. The way forward must include establishing one IT infrastructure to link the generating and operating forces and accurately replicate the changing operating environment in Army training more quickly.

Back to Reality: What has the Army Already Done?

The Army already exhibits many of the behaviors of a learning and adaptive organization. Specifically, the Army looks for best practices from all sources (e.g., CALL), searches history for lessons (e.g., history instruction is embedded in most TRADOC courses), sponsors communities of practice (e.g., companycommand.com), emphasizes after action reviews, enforces information push (e.g., DCGS-A), fosters

engagement of critics (e.g., Secretary of the Army embraced Lieutenant Colonel Paul Yingling),³¹ and stresses open environments (e.g., network collaboration).³²

The Army is doing more by transforming to “meet the demands of the 21st Century.” Part of this “continuous and holistic evolution of Army capabilities” is to change the enterprise to better support ARFORGEN and prepare for full spectrum operations, including improving Army installation training support capabilities. The Army recognizes the need to accelerate transformation as essential “to regain balance” in the force and to “develop agile and adaptive leaders.”³³ In April 2007, CSA General George Casey’s transition team identified a “need to accelerate leader development at all levels,” and General Casey tasked TRADOC to lead this effort.³⁴

As part of base realignment and closure and a need for “greater integration with the operating force,” TRADOC redesigned and created CoEs based on functional competencies.³⁵ The Army formed CoEs based on expertise and a capacity to generate synergy “through effective and efficient combination and integration of functions while reinforcing unique requirements and capabilities.” CoEs have improved interoperability and external agency coordination.³⁶

Similar to TRADOC’s CoEs is the Stryker BCT (SBCT) efforts at the Fort Lewis, Washington, Battle Command Training Center. The Commanding Generals of TRADOC, Forces Command, and Army Materiel Command, along with the Combined Arms Center and I Corps Commanding Generals lead the Stryker Warfighter Forum (SWfF). Senior Army Leaders are using SWfF as a way to potentially develop a new home station training paradigm. The SWfF closely follows deployed SBCTs, engages early to assist commanders in planning for training upon redeployment, and assists in

garnering resources to meet unit ARFORGEN requirements. Senior Army leaders are considering “the eventual creation of two other centers, but with focus on Heavy BCTs (Fort Hood) and Infantry BCTs (Fort Bragg).”³⁷

Then-Major General James M. Dubik described one of the initial objectives for SBCTs, “The Army would get an active, experienced-based learning laboratory from which to gain insights that would be applied to shaping the emerging (force).”³⁸

Demonstrating the operational power of an open environment, 2-25 SBCT incorporated this collaborative environment at lower levels within its formation and created a “learning laboratory,” by forming “Best Practices Forums” for each Soldier to have an opportunity to improve the collective understanding of the organization. According to Lieutenant Colonel William Hartman, 2-25 SBCT also connected the unit vertically to the national Intelligence Community (IC) and

... horizontally to both deployed units in Iraq and to sister companies within the brigade. ... The end result was an organizational culture that was innovative, accepted risk, encouraged exploitation, and was aggressive in its aim to support units in contact on the battlefield.³⁹

The Army has created other non-standard organizations to better integrate, adapt, train, and transform the force. The Army Asymmetric Warfare Office (AAWO) is the Army focal point for asymmetric issues and linked to the Joint Improvised Explosive Device Defeat Organization in its current fight against improvised explosive devices (IEDs). AAWO monitors IED-related training and ensures units receive needed training during ARFORGEN.⁴⁰ The Asymmetric Warfare Group (AWG) specifically looks at future asymmetric threats and serves as a “change agent” by providing key observations and lessons to senior leaders.⁴¹

In pursuing DOD's vision of Network Centric Warfare, the Army is working to enhance information sharing, training, and knowledge management. The goals are to improve data visibility, accessibility, and understandability. The Army's Net-Centric Data Strategy is "... a strategic approach for translating information superiority into combat power and management efficiencies by effectively linking knowledgeable entities within the Army Enterprise."⁴²

As directed by the DOD to provide a Joint National Training Capability (JNTC),⁴³ the Army is building a Live, Virtual, and Constructive Training Environment (LVC-TE). This environment will allow Army units to train and operate in a networked battle command environment. Army Senior leaders expect the LVC-TE to be operational by 2016, but they believe that limited training capabilities can be incrementally added to the force earlier. "This approach enhances Army interoperability, while supporting the goal of an Army/Joint near-seamless LVC-TE to satisfy both near-term and longer-range training requirements."⁴⁴

Additionally, the Joint Knowledge Development and Distribution Capability is an initiative that complements JNTC by providing timely, relevant, and "global access to Joint knowledge, across the Joint learning continuum." The intent is to provide Service members an environment to "share, collaborate, and learn in a realistic JIIM context with other Services and Joint battle staffs."⁴⁵

To better operate in future open training environments and operational architectures, the Army is incorporating new training and ways to operate into its culture. According to the 2008 Army Posture Statement,

The complex interaction between populations, technology, governments, military forces, and external actors is underpinned by culture and the

physical environment. “Every Soldier is a Sensor” (ES2), Cultural Awareness/Language Training, Human Terrain Teams (HTT), and Red Teaming are wartime readiness imperatives and key to adapting traditional military processes and thinking to current and future complex operating environments.⁴⁶

Continued success in complex operating environments requires efforts “to integrate cultural and language lessons learned and feedback from operational theaters into our training at institutional, home station, and combat training centers.”⁴⁷

The Army has retooled the CTCs and BCTP to meet the training requirements for ARFORGEN forces. Since 2003, the CTCs have significantly changed their training and how they provide deploying unit mission rehearsal and mission readiness exercises, specifically tailoring unit experiences to what they will see in Iraq and Afghanistan. The CTCs continue to incorporate lessons learned and enemy TTPs, including IEDs, tunnels, cave complexes, and other characteristics.⁴⁸ TRADOC also plans to create like “quality and standards of CTC training” at home stations.⁴⁹

The Army has taken actions to “stay in contact with the enemy” and provide “tactical overwatch” through the DCGS-A flat network. Through DCGS-A, unit analysts and leaders in Iraq and Afghanistan have access to over 200 databases (historical, corporate-memory data) and other acquired information (e.g., all places where Soldiers were shot at, historical IED attacks, etc.) that can easily be portrayed on Army Battle Command Systems. DCGS-A empowers ARFORGEN reset/train and ready units to “maintain contact with the enemy” and adapt quicker upon transfer of authority with no loss of operational capability or vulnerability.⁵⁰

The Army’s ability to successfully transform while at war is a testament to it being a learning institution. These many changes and the collective experiences of almost seven years of war have developed a generation of adaptive junior leaders that must be

challenged further to operate in full-spectrum operations. Soldiers today do not have the luxury of learning “on the job” once they arrive at a unit. The Army must prepare them in the training base to be able to operate and “contribute to their unit” sooner.⁵¹

A Watershed

Lieutenant Colonel William J. Hartman correctly identified the issue as not adapting “fast enough” and the residual challenge: “The challenge of Army leaders today is to harness the innovative and adaptive capacities of their people to solve complex adaptive problems.”⁵² Using 2-25 SBCT OIF experiences and lessons learned as examples, Hartman recommends the Army focus on “exploitation tactics,” design a “cellular force” to maneuver intelligence assets, and instantiate “adaptive” capabilities in the Army enterprise.⁵³ The Army must heavily invest now in enterprise-wide adaptive training ways to fully integrate operating and generating forces.

Then-Colonel Robert B. Brown, Commander, 1-25 SBCT, provided lessons from training and fighting an SBCT that must be extrapolated and applied to the enterprise:

The Army should eliminate Cold War (training support) relics ... and move to a system of contracting training exercises to allow soldiers to focus on warfighting skills, not mundane garrison tasks. ... the complexity of training for today’s conflicts requires a CTC-type exercise every time the unit goes to the field to train. ... The institutional Army is not prepared to resource SBCTs for this level of training at home station. The model of doing less-complex training at home station and conducting CTC rotations every 18 months or so is out of date. The staff and leaders will never develop the level of practice required under this limited training model.⁵⁴

The hundreds of ongoing Army training initiatives must be incorporated into a single knowledge management network, link the generating and operating forces in near real time, incorporate lessons learned and enemy TTPs, and harness “corporate memory” to take full advantage of the synergy and power to adapt faster than the threat.

The increased velocity and sheer number of training events that Soldiers and leaders will be exposed to with a knowledge management training network will exponentially improve the Army's wartime readiness.

What More Needs to be Done?

The Army must set conditions to successfully implement a knowledge management training network that enables adaptive training across the enterprise. The Army's training mindset, culture, systems, and networks must change from one of many vertical inputs and outputs to a single, integrated, horizontal-focused, and interoperable knowledge management network that is constantly training in garrison and combat. It takes practice to develop the "culture of cooperation" needed to think and share horizontally, eliminate all barriers to communication, and build trust across the force.⁵⁵ Then-Colonel Robert B. Brown identified the critical, success factor—the Army must have Commanders with an inclusive rather than exclusive mind-set, or we "will never get ahead of today's adaptive enemy."⁵⁶ Colonel Brown further added, "Our challenge as leaders is to leverage our past experiences as we break free from it."⁵⁷

Create a Knowledge-Management Training Network. The Army already has the tools and technical know-how to make the network function. What is needed are the organizational changes, systematic processes, and trust among organizations to move ad hoc processes dependent on local initiatives to an enterprise level with senior leader buy-in. The Army must revamp some bureaucratic processes. TRADOC, FORSCOM, and Installation Management Command (IMCOM) must be postured collectively to adapt, learn, and respond to warfighter training needs and take advantage of enterprise opportunities. The system does need direction, but it cannot be overly bureaucratic. The

enterprise knowledge management training network must be centrally directed to generate the required synergy and promote needed cooperation across the force, but execution must be decentralized to fully reap the training value.

Army garrisons, CTCs, BCTP, and CoEs must be resourced and manned to provide the needed training support, automation, communications connectivity, and coordination as directed by the training network operations center. TRADOC, FORSCOM, and IMCOM must tear down barriers to be more adaptive and make near real time adjustments based on lessons learned in theater and warfighter requirements. Garrison “tactical overwatch” and other reachback facilities cannot be viewed as just barracks or office buildings. These facilities are part of the ongoing warfight and will need to add capabilities and change internal configurations to adjust to changing operational requirements. Directors of Information Management must ensure robust connectivity and automation support to ARFORGEN units to ensure required access to combat and intelligence data to maintain “tactical overwatch” and link to the knowledge management training network. The lines between institutional training, readiness and operations are blurring and creating enterprise opportunities that the Army must exploit.

Enable “Tactical Overwatch”. Lieutenant Colonel Hartman articulated an Army-wide issue, “The Army doesn’t historically train as it fights, because in garrison, the Army is not organized or resourced as it fights, and leaders do not have the access to the systems or information required to train units for the challenges of the 21st Century.”⁵⁸ Prior to deployment, 2-25 SBCT created digital exploitation cells with Secret Internet Protocol Router Network (SIPRNET) connectivity links between companies and battalions in garrison and links to OIF units and the IC. These tools provided the means

for the unit to learn and adapt in garrison. 2-25 SBT's efforts provide a glimpse into the creative and innovative possibilities for a connected Army enterprise in garrison.⁵⁹ On the other end of the spectrum, while preparing for deployment to Afghanistan in 2004, the 165th Military Intelligence Battalion had two SIPRNET computers for the entire Battalion. This did not allow the 165th to stay in contact with the unit it was going to replace in theater much less enable "tactical overwatch."⁶⁰ The Army needs to conduct a comprehensive study across all branches, disciplines, and functions to determine best ways and means to enable "tactical overwatch" for the entire force—not just intelligence and Battle Command functions.

Lieutenant Colonel Hartman argues that "tactical overwatch" is a future mission essential task that is the key to enabling BCTs "to see, learn, understand, and provide planning assistance and advice to units that are in actual combat."⁶¹ Understandably, dedicated operational support from an ARFORGEN reset/train and ready force would have to be limited to longer-term, non-crisis matters, or selected surge periods when the unit has pledged priority support to the deployed unit. To enable "tactical overwatch," the Army must immediately improve garrison home-station training support, garrison communications capacity, and other "train as you fight" requirements. The Army and Congress also need to invest heavily in garrison infrastructure and immediately change out-dated policies and remove people that restrict innovation and adaptability.

Structure Combat Enablers to Support Collective Training. As part of an aggregate plan, the Army must resource collective training, the world-class OPFOR, and the knowledge management training network. A combination of contractors and Active Duty, Reserve, or National Guard Soldiers could form the permanent cadre for

the knowledge management training network, the basis for installation training support teams, and the enterprise world-class OPFOR. Two issues frame the discussion of how combat enablers can best support collective training. The first is the already stressed nature of “enabling forces” in the ARFORGEN process. The Army recognizes that many high demand / low density units (e.g., Intelligence, Signal, and Military Police) are deploying at a greater velocity than other units.⁶² The second issue is the reduced number of augmentees available to support CTC rotations with Divisions and BCTs on different deployment schedules and higher operations tempo.⁶³

To ensure optimal CTC training support and mitigate stress on high demand, low density units, the Army could base additional enabling units at CTC installations and other key training nodes. For example, the Army could assign Combat Support Brigades to each CTCs with three Battalions each—one deployable Battalion, one operational support Battalion (e.g., “tactical overwatch”), and one training support Battalion. Soldiers and families could be stabilized for at least seven years by rotating among the three Battalions within each Brigade and deploying 1:3 per ARFORGEN. These units could serve multiple purposes as they are ensuring optimal training support, including providing a surge deployment capability and increased target continuity with Soldiers constantly working the same target areas in garrison and while deployed.

Provide Receptacles to “Plug-in” JIIM Enablers. Effective 21st Century Warfare will be fought within a JIIM framework. The Army is the logical receptacle for JIIM adaptive training, especially stability operations and counterinsurgency related activities. Adaptive training should be “born joint” to fully realize the payoffs in interoperability and adaptability.⁶⁴ To enable JIIM partners, all future systems should also be “born JIIM” and

have the knowledge management training network embedded capability as part of an expanded design requirement and the means to network into the enterprise. TRADOC is already involving Other Government Agencies (OGAs) in training and is approaching training as “unified actions to reflect a whole government approach.”⁶⁵ It is time to move JIIM training to the next level. A knowledge management training network is the ideal mechanism to train habitually in near real time with OGAs and other JIIM partners, and it provides the means for the whole Government to learn and adapt collectively.

Change the Culture. General James Cartwright considers the existing culture of a large organization (e.g., the Army) as the most limiting factor in transforming and adapting to operate in an information-dominated environment.⁶⁶ John P. Kotter highlights a way ahead through behavior rather than speeches or chain teaching, “Leap into the future ... (and) do so sooner rather than later.”⁶⁷ Leadership is the key to culture change. Senior Army Leaders must lead adaptive training forward. One step would be to appoint a three-star General and a small staff to direct “Army Adaptive Training” and control the knowledge management training network.

According to Edgar Schien, there are many secondary or reinforcing mechanisms that are important to embed changes in a large organization’s culture: change design or structure, change systems and procedures, change organization philosophy, and probably the most important to adaptive training—incorporating “rites and rituals” of the organization along with sharing success vignettes about important events and people.⁶⁸ Once the virtual 24 / 7 knowledge management training network is operational, Senior Army Leaders could use the network for communicating day-to-day training-related news and highlight the network’s success and individual / unit

accomplishments. These efforts will require a culture change for a mature, successful organization like the Army. The Army will tend to want to revert back to the way it has always done things. John Kotter understands how to change mindsets and eventually a large organization's culture:

Culture is not something that you can manipulate easily. Attempts to grab it and twist it into a new shape never work because you can't grab it. Culture changes only after you have successfully altered people's actions, after the new behavior produces some group benefit for a period of time, and after people see the connection between the new action and the performance improvement.⁶⁹

Way Ahead

The concept of adaptive training is not new. What is new is the increased velocity of sharing enemy data, enemy TTPs, and friendly lessons learned through unique ways and means to harness the power of the enterprise "corporate memory." This requires a changed culture. Just as 2-25 SBCT created "an organization where new ideas and information ... (were) able to move around the organization, going from one person or one part of the group to the entire organization," the entire Army enterprise must adopt this same approach—adaptive training, a "new mindset," and a changed culture.⁷⁰

The integrated Army "corporate memory" will overwhelm our enemies if used in context. Brigadier General (Retired) Huba Wass de Czege recognizes that,

... we must learn and adapt to the uniqueness of the varied conditions we find. We can act at any moment only on the best understanding we have of the world. Surviving in a complex world depends on learning how to learn and being adaptable. It is impossible to learn without immersion in context.⁷¹

A knowledge management training network provides a near real-time context to the training base. With improved links between the Army's generating and operating forces, Soldiers and leaders intellectually should not know if a task or problem set is real world

or training—the response and approach should be the same. An adaptive training base with near real-time links to the operating force will improve and exponentially empower Army adaptive planning and operations. We must mitigate the risk; we cannot allow smart, adaptive enemies to destroy American institutions and our way of life; we cannot fail Soldiers and leaders—“Adapt or Die!”

Endnotes

¹ Brigadier General David A. Fastabend and Mr. Robert H. Simpson, “Adapt or Die”: The Imperative for a Culture of Innovation in the United States Army,” <http://www.army.mil/thewayahead/acpdownloads/Culture%20of%20Innovation.pdf> (accessed December 11, 2008), 1-2. “Failure does not mean Chapter 11 and an updated resume. Failure means death and destruction for ourselves, our comrades and all that we cherish. ... In the volatile, uncertain, complex and ambiguous environment we face for the foreseeable future, if we were to choose merely one advantage over our adversaries, it would certainly be this: to be superior in the art of learning and adaptation. This is the imperative for a culture of innovation in the U.S. Army. A culture of innovation is typified by an environment within which every single person in the organization is invested in the organization’s success and feels a responsibility to implement new and better ways to achieve organizational objectives.”

² U.S. Department of the Army, *Army Campaign Plan* (Washington, DC: Office of the Deputy Chief of Staff G3, September 30, 2005), change 2, Annex F, *Army Force Generation*. “ARFORGEN is the structured progression of increased unit readiness over time, resulting in recurring periods of availability of trained, ready, and cohesive units prepared for operational deployment in support of civil authorities and combatant commander requirements.”

³ Brigadier General Huba Wass de Czege, “Redefining the Military Strategic Problem Set,” Army, (November 2008): 20. Brigadier General Czege discusses the need for combatant commands to have perpetual, interdependent and adaptive security campaigns with a “desired state,” not an end state. The same concept is required for adaptive training, “no let-up” and no “end state,” only a “desired state.”

⁴ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper “Flat Network” Analysis Systems, http://www.army.mil/aps/08/information_papers/transform/Flat_Network_Intelligence_Access.html (accessed December 13, 2008). “To create ‘actionable intelligence,’ analysts, commanders and Soldiers must have distributed all-source ‘flat’ network access and advanced fusion analysis tools.” Distributed Common Ground System-Army (DCGS-A) enables “analysts to understand norms, detect change, discern linkages, appreciate significance, cue collection, and identify track and target hostile forces within tactically useful timelines.” “The Army will integrate DCGS-A capability across all forces (Combat Arms and Support Forces; Active, National Guard and Reserve) by FY10. ... Army MI is also working aggressively to incorporate DCGS-A into all three Combat Training Centers. ... Every Battalion and BCT needs to be able

to readily access, search and visualize 'years of all-source memory' along tactically useful timelines for effective decision making. DCGS-A is providing that capability to Soldiers."

⁵ Lieutenant General Keith B. Alexander, Institute of Land Warfare, Association of the United States Army Torchbearer National Security Report, "Actionable Intelligence," June 2005, http://www.ausa.org/programs/torchbearer/nsr/National%20Security%20Reports/TB_KeyIssues.pdf (accessed December 21, 2008), 5-6. "The individual Soldier is the most capable sophisticated collector of intelligence in today's Army. To fully harness this capability, the Army must ensure 'Every Soldier is a Sensor' (ES2)." ... "Individual Soldiers must be able to report digitally in real-time instead of waiting for a debriefing several hours after a patrol is completed."

⁶ "Tactical overwatch" is the ability for ARFORGEN reset/train and ready forces to "maintain contact" with enemy in support of ongoing operations and preparation for redeployment.

⁷ U.S. Joint Chiefs of Staff, *Joint Operations*, Joint Publication 3-0 (Washington, DC: U.S. Joint Chiefs of Staff, September 17, 2006), IV-3. "Among the many considerations, operational art requires commanders to answer the following questions. (1) What conditions are required to achieve the objectives? (Ends), (2) What sequence of actions is most likely to create these conditions? (Ways), (3) What resources are required to accomplish that sequence of actions? (Means), (and) (4) What is the likely cost or risk in performing that that sequence of actions? (Risk)."

⁸ Fastabend and Simpson, "Adapt or Die": The Imperative for a Culture of Innovation in the United States Army," 3.

⁹ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Posture Statement presented to the 110th Congress, 2nd sess. (Washington, DC: U.S. Department of the Army, February 26, 2008), 2. The Army sees six major trends that will "fuel persistent conflict:" globalization and increased technological advances, extremist groups, climate change, growing populations, weapons of mass destruction, and instability in failed and failing states.

¹⁰ National Intelligence Council, *Global Trends 2025: A Transformed World* (Washington, DC: US Government Printing Office, November 2008), IV-IX.

¹¹ Frank G. Hoffman, *Conflict in the 21st Century: The Rise of Hybrid Wars* (Arlington, VA: Potomac Institute for Policy Studies, December 2007), 7-10.

¹² Christopher Henzel, "The Origins of al Qaeda's Ideology: Implications for US Strategy," *Parameters* 35, no 1 (Spring 2005): 76-77.

¹³ Jerrold M. Post, eds., *Military Studies in the Jihad Against the Tyrants: The Al-Qaeda Training Manual* (Maxwell Air Force Base, AL: USAF Counterproliferation Center, August 2004), 13, 80.

¹⁴ Bob Kerr, "Meet the Press: New Combined Arms Center Commander Discusses Iraq, Training, Leaders, Lessons-learned," August 28, 2003, http://www.tradoc.army.mil/pao/people_portraits/wallace.htm (accessed December 4, 2008).

¹⁵ Colonel(R) Gregory Fontenot, Lieutenant Colonel E.J. Degen, and Lieutenant Colonel David Tohn, *On Point: The United States Army in Operational Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), iii.

¹⁶ *The United States Army Combined Arms Center Center for Lessons Learned Homepage*, <http://usacac.army.mil/cac2/call/about.asp> (accessed January 3, 2009).

¹⁷ General William S. Wallace, "Victory Starts Here! Changing TRADOC to Meet the Needs of the Army," *Military Review* (May-June 2006): 64-65.

¹⁸ Michael G. Shanley et al., *Supporting Training Strategies for the Brigade Combat Teams Using Future Combat Systems (FCS) Technologies* (Santa Monica, CA: RAND Corporation, 2007), xv-xvii.

¹⁹ U.S. Department of the Army, *Operational Terms and Graphics*, Field Manual 1-02, (Washington, DC: U.S. Department of the Army, September 2004), 1-65. The DOD defines military doctrine as "fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives."

²⁰ Jim Garamone, "Army, Marines Release New Counterinsurgency Manual," linked from DefenseLink Home Page, by American Forces Press Service, <http://www.defenselink.mil/News/NewsArticle.aspx?ID=2453> (accessed December 9, 2008).

²¹ U.S. Department of the Army, *Operations*, Field Manual 3-0, 1-17.

²² U.S. Department of the Army, *Training for Full Spectrum Operations*, Field Manual 7-0, (Washington, DC: U.S. Department of the Army, December 2008), 1-6.

²³ Robert M. Klein, "Adaptive Planning: Not Your Great Grandfather's Schlieffen Plan," *Joint Force Quarterly*, no. 45 (2d quarter 2007): 84. According to Robert Klein's review of the 2005 Adaptive Planning Roadmap, Adaptive Planning is "... (the) joint capability to create and revise plans rapidly and systematically, as circumstances require. It occurs in a networked, collaborative environment, requires the regular involvement of senior leaders, and results in plans containing a range of viable options that can be adapted to defeat or deter an adversary to achieve national objectives."

²⁴ U.S. Department of the Army, *Operations*, Field Manual 3-0 (Washington, DC: U.S. Department of the Army, February 27, 2008), 5-18.

²⁵ Joseph Smallwood, "SAMS Graduates Creative Thinkers and Adaptive Leaders," December 9, 2008, linked from *TRADOC Home Page* at TRADOC News Service, <http://www.tradoc.army.mil/pao/tnsarchives/december%202008/120908-1.html> (accessed 12 December 2008).

²⁶ Major General Peter W. Chiarelli and Major Patrick R. Michaelis, *Winning the Peace: The Requirement for Full-Spectrum Operations*, *Military Review*, (July-August 2005): 15. Then-Major General Chiarelli stated, "Our traditional training model, still shuddering from the echo of our Cold War mentality, has infused our organization ... Critical thinking, professionally grounded in the controlled application of violence, yet exposed to a broad array of expertise not normally

considered as a part of traditional military functions, will help create the capacity to rapidly shift cognitively to a new environment. We must create an organization built for change ...”

²⁷ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper “Prepare Soldiers for Success in Current Ops” linked at http://www.army.mil/aps/08/information_papers/prepare/prepare.html (accessed December 13, 2008).

²⁸ General William S. Wallace, “Victory Starts Here! Changing TRADOC to Meet the Needs of the Army,” 59.

²⁹ The author visited the Training Counter-IED Operations Integration Center on November 13, 2007. TCOIC mission statement: “TCOIC serves as an agent of change to enable units to effectively employ Army, Joint, and Interagency Counter IED capabilities and prepares leaders to execute offensive operations to defeat the IED system (and other emerging asymmetric challenges) through the operational integration of training, intelligence, analysis and technology.” The TCOIC is just one example of a location that could serve as network control for a knowledge management training network: already has robust communications capacity, is focused on training reach back capabilities, and understands importance of linking the generating and operating forces in near real time. The TCOIC has the potential to be revamped quickly to a broader mission set beyond the counter IED training reach back mission set.

³⁰ CPOF is a command and control system being used in Iraq by some units. The system enables units to maintain real-time situational awareness and conduct collaboration with higher headquarters, adjacent units, and subordinate forces. DCGS-A is the Army’s premier intelligence data and collaboration tool that is built around a worldwide distributed, “flat” network centric, system-of-systems architecture.

³¹ Pete Geren, “Today’s Army—Ready Today, Preparing for Tomorrow,” *Army: 2008-09 Greenbook* Vol. 58, no. 10 (Arlington, VA: Association of the U.S. Army, October 2008): 15. Secretary Geren recognizes a need to support mavericks and “out of the box” thinking or criticism: “We must encourage those who afflict the comfortable. Recently, Lt. Col. Paul Yingling wrote a piece that appeared in the *Armed Forces Journal* and sparked heated debate throughout the Army—ruffling a lot of feathers. That is a good thing. We need more, not fewer, Paul Yinglings.”

³² *Ibid.*, 10-11.

³³ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper Transformation to Meet the Demands of the 21st Century, http://www.army.mil/aps/08/information_papers/transform/transform.html, (accessed December 13, 2008). CSA General George Casey assesses the Army as out of balance, “The current demand for our forces in Iraq and Afghanistan exceeds the sustainable supply and limits our ability to provide ready forces for other contingencies.” The Army’s plan is to “mitigate near-term risk and restore balance by 2011” through four imperatives: Sustain, Prepare, Reset and Transform. “Transformation is defined as the continuous and holistic evolution of Army capabilities over time from the current to the future force.” There are six elements of transformation: Grow the Army, Modernize the Army, Change the organization, Change the institution, Transform the Reserve Components, and Develop agile and adaptive leaders.

³⁴ "Army to Accelerate Leader Development Across the Force," *TRADOC News Service*, linked to http://www.tradoc.army.mil/pao/public_communications_branch/092407-1.html (accessed December 11, 2008).

³⁵ General William S. Wallace, "Victory Starts Here! Changing TRADOC to Meet the Needs of the Army," 65. "Finally, multi-branch CoEs will consolidate functions at the center level to the maximum extent possible while maintaining branch identity with branch commandants focusing on leader development, education, and branch functional training."

³⁶ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper linked at http://www.army.mil/aps/08/information_papers/transform/Institutional_Training.html (accessed December 13, 2008).

³⁷ "Stryker Brigade Combat Team (SBCT) Warfighters' Forum: A New Army Paradigm for Home Station Unit Training," *Association of the United States Army Home Page*, Torchbearer Information Paper, <http://www.ausa.org/programs/torchbearer/issuepapers/Pages/default.aspx>, 2-3.

³⁸ Lieutenant Colonel Christopher J. Toomey, "C4ISR in the Stryker Brigade Combat Team," *Military Review* (May – June 2003): 42.

³⁹ Lieutenant Colonel William J. Hartman, *Exploitation Tactics: A Doctrine for the 21st Century*, School of Advanced Military Studies Monograph (Fort Leavenworth, KS: U.S. Army Command and General Staff College, April 21, 2008), 31.

⁴⁰ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper Army Asymmetric Warfare Office, http://www.army.mil/aps/08/information_papers/prepare/Army_Asymmetric_Warfare_Office.html (accessed December 13, 2008).

⁴¹ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper Asymmetric Warfare Group, http://www.army.mil/aps/08/information_papers/prepare/Army_Asymmetric_Warfare_Group.htm I. (accessed December 13, 2008).

⁴² George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper linked at http://www.army.mil/aps/08/information_papers/prepare/Army_Netcentric_Data_Strategy.html, (accessed December 13, 2008).

⁴³ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper Live, Virtual, Constructive Integrating Architecture and Infrastructure, http://www.army.mil/aps/08/information_papers/prepare/Live_Virtual_Constructive_Integrating_Architecture_and_Infrastructure.html, (accessed December 13, 2008). "The Joint National Training Capability (JNTC) is a DOD program that adds joint/integrated context to existing Army and Combatant Commander (COCOM) training programs. ... JNTC can train against a general or mission focused threat; test doctrine, tactics, techniques, procedures, Joint Operational Concepts, and equipment. As the integrating environment, JNTC provides training to the full complement of defense, inter-agency and multi-national audiences."

⁴⁴ Ibid.

⁴⁵ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper linked at http://www.army.mil/aps/08/information_papers/transform/Joint_Knowledge_Development_and_Distribution.html (accessed December 13, 2008).

⁴⁶ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper linked at http://www.army.mil/aps/08/information_papers/transform/Change_the_Culture.html, (accessed December 13, 2008). "The routine observation and reporting of patterns and changes in the operating environment through interaction with the local populace are ES2 tasks which have been incorporated in Army Doctrine, all Initial Entry Training, collective training at Army Combat Training Centers, and most recently have been added to the 'America's Army' video game."

⁴⁷ Ibid.

⁴⁸ George W. Casey and Pete Geren, *2008 Army Posture Statement: A Campaign Quality Army with Joint and Expeditionary Capabilities*, Information Paper linked at http://www.army.mil/aps/08/information_papers/prepare/Army_Combat_Training_Center_Program.html (accessed December 13, 2008).

⁴⁹ Danielle Giovannelli, *Profile of the U.S. Army 2008* (Arlington, VA: Institute of Land Warfare, Association of the United States Army, 2008), 27-28.

⁵⁰ Lieutenant General John F. Kimmons, Institute of Land Warfare, Association of the United States Army Torchbearer, "Army Intelligence Transformation," July 2007, http://www.ausa.org/programs/torchbearer/nsr/National%20Security%20Reports/TNSR_07-07_Intel.pdf (accessed December 21, 2008), 7-8. "Army Intelligence transformation is moving ahead aggressively and is fully integrated with the Army Campaign Plan ... Army Intelligence transformation is focused on four key vectors: increasing MI capacity and skills balance; revitalizing Army HUMINT; enabling BCT and Battalion level access to 'flat,' all-source information networks; and improving MI wartime readiness by equipping Soldiers for the asymmetric fight; and transforming intelligence training."

⁵¹ John Harlow, "Changing Global Environment Drives TRADOC to Enhance and Accelerate leader Development, Protracted Confrontation Now the Norm," *The Army Home Page*, September 24, 2007, linked at <http://www.army.mil/-news/2007/09/24/4963-changing-global-environment-drives-tradoc-to-enhance-and-accelerate-leader-development---protracted-confrontation-now-the-norm/> (accessed January 3, 2009).

⁵² Lieutenant Colonel William J. Hartman, *Exploitation Tactics: A Doctrine for the 21st Century*, Abstract and 2.

⁵³ Ibid., 55-56.

⁵⁴ Colonel Robert B. Brown, "Transformation and the Ability to Truly Train the Way We Will Fight," *Military Review* (May – June 2005), 22-23.

⁵⁵ Colonel(P) Robert B. Brown, "The Agile—Leader Mind— Set: Leveraging the Power of Modularity in Iraq," *Military Review* (July–August 2007), 42-44.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Lieutenant Colonel William J. Hartman, *Exploitation Tactics: A Doctrine for the 21st Century*, 31.

⁵⁹ Ibid., 32.

⁶⁰ Author personal experience as Commander, 165th Military Intelligence Battalion, June 2004 - September 2006.

⁶¹ Lieutenant Colonel William J. Hartman, *Exploitation Tactics: A Doctrine for the 21st Century*, 28.

⁶² Ann Roosevelt, "Army Enablers Stretched, Vice Chief Says," *Defense Daily*, 22 January 2009, http://www.defensedaily.com/publications/dd/Army-Enablers-Stretched-Vice-Chief-Says_5403.html and Joseph E. Whitlock, *How To Make Army Force Generation Work For The Army's Reserve Components* (Carlisle Barracks, PA: Strategic Studies Institute, August 2006), 5; linked at <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB720.pdf> (accessed January 7, 2009).

⁶³ Major Christopher S. Bye, Operations Officer (S3), Joint Readiness Training Center Operations Group, email interview by author, January 9, 2009.

⁶⁴ Brigadier General David A. Fastabend and Mr. Robert H. Simpson, "Adapt or Die": The Imperative for a Culture of Innovation in the United States Army," 8.

⁶⁵ General William S. Wallace, "Training and Doctrine Command: All About the Soldier," *Army: 2008-09 Greenbook* Vol. 58, no. 10 (Arlington, VA: Association of the U.S. Army, October 2008): 84.

⁶⁶ Ronald R. Luman, ed., *Proceedings on Combating the Unrestricted Warfare Threat: Integrating Strategy, Analysis, and Technology*, (Laurel, MD: Johns Hopkins University Applied Physics Laboratory, 2007), linked at http://www.jhuapl.edu/urw_symposium/previous/2007/pages/proceedings/2007/chapters/URW%202007%20Book.pdf (accessed January 5, 2009): 21-22. Also referenced in Lieutenant Colonel William J. Hartman, *Exploitation Tactics: A Doctrine for the 21st Century*, 10.

⁶⁷ John P. Kotter, *Leading Change* (Boston, MA: Harvard Business School Press, 1996), 186.

⁶⁸ Edgar H. Schein, *The Corporate Culture Survival Guide* (San Francisco: Jossey Bass, 1999), 312, quoted in Stephen J. Gerras, Leonard Wong, and Charles D. Allen, *Organizing Culture: Applying A Hybrid Model to the U.S. Army* (Carlisle Barracks, PA: U.S. Army War College), 19-120.

⁶⁹ John Kotter, *Leading Change*, 156.

⁷⁰ Lieutenant Colonel William J. Hartman, *Exploitation Tactics: A Doctrine for the 21st Century*, 35; and Malcolm Gladwell, *The Tipping Point: How little Things Can Make a Big Difference* (New York and Boston: Little Brown and Company, 2000), 191-192.

⁷¹ Brigadier General Huba Wass de Czege, "Redefining the Military Strategic Problem Set," *Army* (November 2008): 25.

